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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/756,800	01/13/2004	Trevor Montgomery	077077-9174-00	1529
23409	7590	10/19/2005		EXAMINER
MICHAEL BEST & FRIEDRICH, LLP 100 E WISCONSIN AVENUE MILWAUKEE, WI 53202.				FERGUSON, MARISSA L
			ART UNIT	PAPER NUMBER
			2854	

DATE MAILED: 10/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/756,800	MONTGOMERY, TREVOR
	Examiner Marissa L. Ferguson	Art Unit 2854

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 05 July 2005.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 16-63 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) 47-63 is/are allowed.  
 6) Claim(s) 16-24,27-33 and 35-46 is/are rejected.  
 7) Claim(s) 34 is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 13 November 2004 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date 7/5/05.
- 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_.  
 5) Notice of Informal Patent Application (PTO-152)  
 6) Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 16,17,24,27-29,30-33,35,37-42 and 44-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lewis (GB 2,351,558) in view of Eisen et al. (US Patent 6,717,168).

Regarding claims 16,24,27 and 28, Lewis teaches an optical sensor (516), a first optical mask (518) spaced from the optical sensor, the first optical mask having an aperture therethrough (Figures 1 and 2), a second optical mask (second mask) is located adjacent to first mask 518 in figure 1) with an aperture in series with the first mask, the apertures of the first and second masks together defining the viewing footprint (514) of the optical sensor and a light source for illuminating the substrate (504). However, he does not explicitly disclose a first light source for providing selective diffuse illumination of a web substrate and a second light source for providing selective direct reflection illumination of the web substrate and wherein the two sources comprise LED's that can act independently of each other.

Eisen et al. teaches two light sources (6,7) with LED's (8) that provide diffuse illumination and reflection illumination (Abstract, Column 1, Lines 58-60, Column 2,

Lines 14-19, Lines 24-27, Lines 37-43, Column 4, Lines 42-49 and Column 5, Lines 34-45) of a web substrate (13) and wherein the two light sources can act alternately of each other (Column 1, Lines 62-64). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the invention as taught by Lewis to include two light sources for diffusion and illumination as taught by Eisen et al., since Eisen et al. uses the two light sources to safely scan markings on the web of different materials.

Regarding claim 17, Lewis teaches wherein the second mask is between the first mask and the sensor, and wherein the second mask is closer to the sensor than to the first mask (second mask is located next to and behind first mask 518 in figure 1 and closer to detector 557).

Regarding claim 29, Lewis teaches wherein the first optical mask is positioned parallel to the web surface (Figure 1).

Regarding claims 30,38,39 and 46, Lewis and Eisen et al. both teach the claimed invention including a mask located a distance from the web and light sources located a distance with respect to the web. However, Lewis nor Eisen et al. explicitly discloses the claimed 2-5 mm range, a first light source including an axis oriented at 45 degrees with respect to a plane perpendicular to the web substrate and a second light source including an axis oriented at 10 degrees with respect to a plane perpendicular to the web substrate. However, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. It would have been obvious to

locate the mask and light sources the claimed distance from the web, since such a modification would result in proper lighting thereby providing a clear and concise footprint on the web.

Regarding claim 31, Lewis teaches at least one LED illuminating a viewed footprint of the web surface (514, 406a,408b).

Regarding claims 32,33 and 40, Lewis teaches first light source (406a,408b) and a second (406a,408a) light sources, an optical mask (404a) having an aperture therethrough and passing light reflected from the web substrate, an optical sensor (402b) for receiving light passing through the aperture (Figure 11a) and a means for selecting between operation of the first light source, the second light source or both light sources (Page 15, Lines 1-3). However, he does not explicitly disclose a first light source for providing selective diffuse illumination of a web substrate and a second light source for providing selective direct reflection illumination of the web substrate and wherein the two sources comprise LED's that can act independently of each other.

Eisen et al. teaches two light sources (6,7) with LED's (8) that provide diffuse illumination and reflection illumination (Abstract, Column 1, Lines 58-60, Column 2, Lines 14-19, Lines 24-27, Lines 37-43, Column 4, Lines 42-49 and Column 5, Lines 34-45) of a web substrate (13) and wherein the two light sources can act alternately of each other (Column 1, Lines 62-64). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the invention as taught by Lewis to include two light sources for diffusion and illumination as taught by

Eisen et al., since Eisen et al. uses the two light sources to safely scan markings on the web of different materials.

Regarding claims 35 and 42, Lewis teaches wherein at least one of the first and second light sources includes LEDS (406a,408a).

Regarding claims 37,44 and 45, Lewis teaches wherein one of the intensity and wavelength of at least one of the first and second light sources is adjustable (Page 14, Paragraphs 3-5).

Regarding claim 41, Lewis teaches a second optical mask having an aperture therethrough, the aperture of the second optical mask in series with the aperture of the first optical mask (second mask is located next to and behind first mask 518 in figure 1).

2. Claims 18-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lewis (GB 2,351,558) in view of Eisen et al. (US Patent 6,717,168) as applied to claims 16 and 17 above, further in view of Suda et al. (4,589,842).

Regarding claims 18-20, Lewis and Eisen et al. both teach the invention claimed with the exception of the spacing between the first mask and the second mask is of the order of ten times greater than the spacing of the first mask from the surface and wherein the ratio between the area of the aperture of the second mask and the area of the aperture of the first mask is substantially the same as the ratio of the spacing of the first and second masks relative to the spacing of the first mask from the surface and the area of the aperture of the second mask is greater than that of the first mask. Suda et al. teaches the same pattern of apertures in the first mask as compared with the second

mask however the area of mask one is larger (Figure 1), he teaches spacings between the first (101) and second masks (105) and with respect to the area ratios, he does not explicitly disclose the ratio or the exact claimed order of ten times greater between the two masks. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to further modify the invention as taught by Lewis to replace the lack of space thereof with the spacing and ratio as taught by Suda et al., since Suda et al. teaches that it is advantageous to provide a focused state regardless of the outer appearance or pattern of the mask.

Regarding claims 21 and 23, Lewis and Eisen et al. both teach the claimed invention with the exception of wherein the scanning head is configured to enable demounting of either of the first or second masks to allow for interchanging of masks with different aperture shapes or sizes and wherein an aperture of first or second mask is the same shape or similar to mark on the web. Suda et al. teaches a mask (103) with aperture that is similar to that as projected on subject (106) and multiple embodiments interchanging the patterns, shapes and sizes of masks (Figures 1 and 9). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to further modify the invention as taught by Lewis to include a similar aperture of a mask as projected on a web and a variety of masks as taught by Suda et al., since

Suda et al. teaches an apparatus capable of providing light distribution in a plurality of directions thereby detecting a focused state.

Regarding claim 22, Lewis teaches wherein an aperture of the at least one of the first and second optical masks comprises multiple holes or slits (Figure 2,10A and 10B).

3. Claims 36, 38 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lewis (GB 2,351,558) in view of in view of Eisen et al. (US Patent 6,717,168) as applied to claim 32 above, and further in view of Rabjohns et al. (US Patent 5,439,199).

Lewis and Eisen et al. both teach the claimed invention with the exception of at least one of the first and second light sources emits one of white light and UV light. Rabjohns et al. teaches a light emitter that consists of a white light and UV source (Column 14, Claim 5). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to further modify the invention as taught by Lewis replace the light source thereof with a white and uv light source as taught by Rabjohns et al., since Rabjohns et al. teaches that it is advantageous to provide powerful light source in order to detect the presence of a sheet.

#### ***Allowable Subject Matter***

4. Claim 34 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. Claims 47-63 are allowed.

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6. The following is a statement of reasons for the indication of allowable subject matter: Regarding claims 34, 47 and 53, the prior art does not teach or render obvious a selecting means, wherein the selection of the light sources is dependent upon the type of web substrate.

***Response to Arguments***

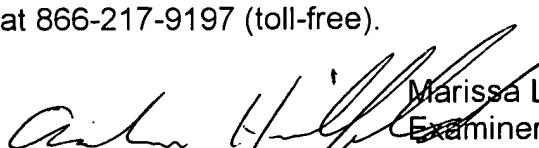
7. Applicant's arguments with respect to claims 16-46 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marissa L. Ferguson whose telephone number is (571) 272-2163. The examiner can normally be reached on (M-T) 6:30am-4:00pm and every other (F) 7:30am-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Hirshfeld can be reached on (571) 272-2168. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Marissa L Ferguson  
Examiner

ANDREW H. HIRSHFELD  
SUPERVISORY PATENT EXAMINER  
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